

Remarks

Favorable reconsideration of this application is requested in view of the following remarks. For the reasons set forth below, Applicant respectfully submits that the claimed invention is allowable over the cited references.

The non-final Office Action dated November 2, 2004, indicated that claims 12-20 are rejected under 35 U.S.C. § 112(2); claims 12-16, 18 and 19 are rejected under 35 U.S.C. § 103(a) over Paniccia *et al.* (U.S. Patent No. 6,072,179) in view of Kikuchi (U.S. Patent No. 5,999,006); and claims 17 and 20 are rejected under 35 U.S.C. § 103(a) over Paniccia *et al.* in view of Kikuchi and further in view of Dickol *et al.* (U.S. Patent No. 5,381,421).

Applicant respectfully traverses the Section 112(2) rejection because the Examiner has failed to respond to Applicant's previous comments regarding the claim language at issue, the Examiner presents illogical questions and arguments in support of the rejection, the Examiner's apparent concerns are not appropriately addressed with a Section 112(2) rejection, and Applicant has repeatedly overcome the Examiner's apparent concerns with the arguments presented in previous correspondence.

The instant Office Action merely repeats the Section 112 rejection as it was presented in the final Office Action dated April 27, 2004, without addressing any of Applicant's arguments against the rejection which were presented in both Applicant's Office Action Response and Amendment After Final filed on June 28, 2004, as well as in the Appeal Brief filed on September 22, 2004. The MPEP dictates that the Office Action should take note of the applicant's arguments and answer the substance of them. *See* MPEP § 707.07(f). This is consistent with the purpose of aiding the applicant in judging the propriety of continuing the prosecution, as indicated in 37 C.F.R. § 1.104(a)(2) and 35 U.S.C. § 132. MPEP § 707.07(f) further urges that the Examiner state the reasons for his or her position (regarding Applicant's arguments) in the record. The Examiner's failure to respond to any of Applicant's arguments regarding the claim language at issue is burdensome and fails to aid in furthering the prosecution of the instant application. Because the Office Action fails to comply with this requirement of the MPEP, Applicant requests that the rejection be withdrawn.

Applicant has attempted to address the Examiner's questions and conclusions, as set forth in paragraph 4 of the instant Office Action. However, the Examiner's questions

and conclusions are illogical. The Examiner alleges that certain claim limitations are not understood and asks: (1) whether the modulation prevents the optical beam from reaching the circuit; or (2) whether the optical beam is of sufficiently short duration that the optical signal is not detected by the circuit. As addressed below, these questions are not relevant and the answer to both questions may be yes, depending on the context. The Specification explains that the optical beam may be pulsed wherein the beam would be prevented from reaching the circuit when the optical beam is in the “off” mode of a pulse sequence. The optical signal would also not be detected when the optical beam is pulsed “off.” The Examiner appears concerned that if the optical beam is prevented from reaching the circuit, the device would not be functional. Applicant is unsure of which “device” the Examiner is addressing with this concern. When the optical beam is pulsed “on” and “off,” the testing arrangement is functional. *See* page 7, lines 11-14, of the instant Specification. If the optical beam is off for an extended period of time, the testing arrangement is not necessarily in an enabled and operational mode. If the “device” referred to is the integrated circuit (IC), the Specification discusses an IC device as a defective IC device and a non-defective IC device. *See Id.* If the Examiner is referring to the IC device as the defective device, then the device is always non-functional; therefore, the issue as to when the beam is pulsed off is not relevant.

The Examiner also notes that carriers created by optical means will still be available for electrical interaction with the circuit. Applicant fails to understand how carriers relate and whether the Examiner is attempting to ask this question in the context of a defective integrated circuit device or a non-defective circuit device. *See Id.* Further, the Specification does not have to explain what may happen within particular aspects of circuitry since they are not claimed. MPEP § 2163. Despite the illogicality of the Examiner’s questions and conclusions regarding the claim language at issue, each of the questions and conclusions are believed to have been addressed and overcome. Accordingly, Applicant requests that the Section 112(2) rejection be withdrawn.

The Examiner’s apparent concerns with the claim language at issue do not appear to provide adequate grounds for a Section 112(2) rejection. A Section 112(2) inquiry during examination is the patentability of the invention as the applicant regards it. MPEP § 2171. Applicant has repeatedly clarified the claim language at issue, including

examples from the instant Specification and extrinsic evidence. If the Examiner disagrees with Applicant's explanation of the instant invention, he should state the reasons of disagreement. However, Section 112(2) is not an appropriate statutory basis for rejecting Applicant's claims in view of the Examiner's apparent concerns. Applicant's claims particularly point out and distinctly claim that which Applicant regards as the invention, therefore the Section 112(2) rejection is improper.

Moreover, the sole evidence of record, including dictionary definitions, supports the plain meaning of the rejected claim terms. These terms concern the modulation of an optical beam being adapted to "inhibit optical beam intrusion upon the integrated circuit." The MPEP requires that claim terms be read in view of their plain meaning when used in a manner consistent with the accepted meaning. *See* MPEP § 706.03(d). This questioned claim terminology was explained in the Appeal Brief filed on September 22, 2004, in the Office Action Response filed on February 19, 2004, and in the Office Action Response and Amendment After Final filed on June 28, 2004. As supported by the instant Specification, *e.g.*, page 6, lines 14-20, and Figure 1, the modulated optical beam reaches the selected portion of the die and the modulation is used to inhibit the optical beam's intrusion on the IC:

According to an example embodiment of the present invention, an optical beam is directed at a selected portion of a conventional flip chip type SOI die. The beam is pulsed at an interval that is sufficient to inhibit intrusion of the beam into the die. A reflected optical response from the SOI is obtained from the die and used to generate a waveform representing an electrical characteristic of the die. In this manner, analysis of SOI flip chip dies is made possible while maintaining minimal beam intrusion, and without necessarily destroying the die.

Also, the dictionary definition of "inhibit" is consistent with Applicant's Specification: the Merriam-Webster online dictionary (www.m-w.com) defines "inhibit" as to hold in check, or restrain and the dictionary at www.hyperdictionary.com defines "inhibit" as to limit the range or extent of. As Applicant has explained that the claim term at issue is directed to an optical beam of short duration so as to limit intrusion on the integrated circuit, the rejection is based on an unsupported and irrelevant comment or opinion proffered by the Examiner. It would appear, as further discussed below, that the Examiner is attempting to ignore important claim limitations in order to support the

stated prior art rejection. Applicant submits that the Examiner has ignored the evidence of record and the Section 112(2) rejection is improper. Accordingly, Applicant requests that the Section 112(2) rejection be withdrawn.

Applicant respectfully traverses each of the Section 103(a) rejections because the Examiner fails to satisfy each of the three requirements of a proper Section 103(a) rejection. In order to present a proper Section 103(a) rejection, the Examiner must present a combination of references that teaches or suggests each of the claimed limitations, present evidence of suggestion or motivation to combine the cited references, and have a reasonable expectation of success for the proposed combination. MPEP § 2143. The Examiner fails to satisfy any of these three criteria; therefore, the Section 103(a) rejections are improper and should be withdrawn.

The Examiner has failed to identify a combination of references that corresponds to the claimed invention. While both of the rejections rely on the combination of the '179 and '006 references, the Examiner fails to identify where the '179 reference teaches the alleged mode-locked laser modulation being used to mitigate optical beam intrusion upon the integrated circuit, as claimed; and Applicant fails to recognize where this teaching exists. The Examiner has not cited any teachings in the '179 reference that would correspond to these claimed limitations. The '006 reference fails to compensate for this deficiency in the '179 teachings, as the '006 light is not modulated nor modulated so as to inhibit optical beam intrusion, as claimed. Without a showing of complete correspondence to each of the claimed limitations, the Section 103(a) rejections are improper and cannot be maintained. Applicant accordingly requests that the rejections be withdrawn.

Moreover, it would appear that the Examiner is employing a Section 112(2) rejection in an attempt to ignore certain of Applicant's claim language. As discussed above, Applicant has provided an explanation and support for the claim language to clarify the claim language at issue. Thus, the Section 112(2) rejection is improper and should not be used as a shield to ignore certain claim limitations. Correspondence must be shown to each of the claim limitations to sustain a Section 103(a) rejection and the Examiner has failed to satisfy this requirement.

With particular respect to claim 15, the Section 103(a) rejection is improper because the proposed combination fails to correspond to each of the claimed limitations. Ignoring Applicant's previous arguments, the Examiner has concluded that "[t]here is no evidence that pulse length is critical." Claim 15 is specifically directed to an optical beam arrangement adapted to pulse a laser at "femto-second-range pulses," with the modulation being important for a circuit structure problem that is not a concern for the '179 reference. The import of the claimed pulse length is specifically discussed at page 7, lines 8-11: "The femto-second pulse duration aids in analysis of circuitry operating at high frequency, and in circuitry located such that analysis using a laser having a longer pulse or constant application would harm the die." The Examiner cannot ignore such specific claim limitations when none of the cited references recognize or address the problem. *See* MPEP § 2141.02. This is part of the "subject matter as a whole" which should always be considered in determining the obviousness of an invention under 35 U.S.C. § 103. Without a showing of correspondence to each of the claimed limitations, the Section 103(a) rejection cannot stand and Applicant requests that the rejection be withdrawn.

The Examiner has also failed to present evidence of motivation to combine the cited references to achieve the limitations of the present invention. The primary, '179, reference, as acknowledged by the Examiner, makes no mention of SOI structures. Therefore the '179 teachings fail to recognize problems associated specifically with SOI structures. The Examiner erroneously asserts that since the '006 reference teaches an optical technique for analyzing an SOI structure, "it would be obvious" to use the '179 optical technique for an SOI substrate because both SOI structures and the '179 substrates contain circuits. The optical techniques taught by the '179 and '006 references respectively are entirely different techniques that are not necessarily interchangeable to various devices and structures. The Examiner has not cited any teachings in the '179 reference that would suggest using the '179 optical techniques for SOI structures. Moreover, the Examiner fails to identify how the '179 teachings would be modified to address the specific problems associated with SOI structures, *e.g.*, optical beams disrupting or damaging circuitry components. Without a presentation of evidence from the cited teachings, that one skilled in the art would combine the cited teachings to

achieve the limitations of the claimed invention, the Section 103(a) rejection is improper and should be withdrawn.

Further, there is no expectation of success for the proposed modification because the proposed modification would frustrate the purpose and operation of the '179 teachings thereby rendering the proposed modification unmotivated and improper. The MPEP states that when a proposed modification renders the teachings being modified unsatisfactory for their intended purpose, there is no suggestion or motivation to make the proposed modification under 35 U.S.C. § 103(a). *See* MPEP § 2143.01. The Examiner suggests inserting the damaged '006 substrate (substrate has pin holes in the buried oxide layer as shown in Figures 1, 4 and 5) or the damaging analysis technique of the '006 teachings into the '179 teachings. The '179 reference is directed to operating a DUT to detect electrical waveforms corresponding to varying voltages. *See* col. 7, line 65 – col. 8, line 2. The damaged '006 substrate would not operate properly while under test to provide the desired voltage correlation data. Moreover, the '179 backside analysis technique would result in the mode-locked laser intruding into the SOI circuitry thereby disrupting the operation of the structure and likely damaging the circuitry, thus eliminating the possibility of testing the structure's integrity. To suggest that the skilled artisan would use the '179 teachings on the '006 SOI structure is untenable and would undermine the purpose and operation of the '179 reference. Thus, the proposed combination is unmotivated and Applicant requests that the Section 103(a) rejections be withdrawn.

In view of the above discussion, Applicant believes that the rejections have been overcome and the application is in condition for allowance.

A favorable response is requested. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is encouraged to contact the undersigned at (651) 686-6633.

Respectfully submitted,

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